



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 59 TO

FACILITY OPERATING LICENSE NO. NPF-38

LOUISIANA POWER AND LIGHT COMPANY

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated October 5, 1989 as supplemented by letters dated October 23 and November 1, 1989, Louisiana Power and Light Company (LP&L or the licensee) requested changes to the Technical Specifications (Appendix A to Facility Operating License No. NPF-38) for Waterford Steam Electric Station, Unit 3. The revised Technical Specifications (TS) will permit more operable charging pumps in various shutdown modes at different k_{eff} values while two boron dilution alarms are operable. The intention of this change is to resolve two concerns from the current TS 3.1.2.9. First, the requirements of the minimum number of operable charging pumps are not consistent between TS 3.1.2.9 and TS 3.1.2.4. Second, the current TS 3.1.2.9 permits only one operable charging pump during Mode 3 when k_{eff} is greater than 0.98. This restriction causes operational difficulty when entering Mode 2 from Mode 3 and the dilution of RCS boron concentration using charging pumps is needed. Supplementary information was submitted by the licensee's letters dated October 23 and November 1, 1989 to support its proposed change of TS 3.1.2.9. The supplemental information was to clarify the proposal in the October 5, 1989 letter and did not change the staff's determination of no significant hazards consideration published in the Federal Register on October 23, 1989 (54 FR 43210).

2.0 EVALUATION

The current TS 3.1.2.9 requires two boron dilution alarms operable or the primary make-up path to the reactor coolant system be isolated and operation is prohibited in certain configurations specified in Tables 3.1-1 through 3.1-5. However, the requirements in these tables are based on an assumption that a 30 minute operator action for manual sampling of the boron concentration of the reactor coolant system is needed to identify a boron dilution event. Therefore, the restrictions of the Tables 3.1-1 through 3.1-5 are intended to serve as an alternate means of protection for a boron dilution event when one or two boron dilution alarms are not available.

The licensee proposed that TS 3.1.2.9 contain two separate sets of restrictions to guard against a boron dilution event. The restrictions of Specification 3.1.2.9.a apply when two boron dilution alarms are operable. These restrictions are based on required operator response time after an alarm consistent with SRP 15.4.6. That is 15 minutes for Modes 3, 4, and 5 and 30 minutes for Mode 6. When less than two boron dilution alarms are operable, TS 3.1.2.9.b does not allow the plant to be operated in the configurations prohibited by Table 3.1-1 through 3.1-5. These restrictions are based on the operator response time of SRP 15.4.6 plus an additional 30 minutes for sampling the boron concentration of the reactor coolant system. This part of the TS is essentially the same as the current TS 3.1.2.9.

In response to the staff request, the licensee in its letter dated November 1, 1989, provided the results of an analysis to support the revised TS 3.1.2.9. The staff has reviewed the calculated times between alarm and loss of shutdown margin for a postulated boron dilution event during various operating modes and k_{eff} values. The staff has concluded that the proposed new restrictions in TS 3.1.2.9.a meet the guidelines in SRP 15.4.6.

The revised TS 3.1.2.9.a will provide operational flexibility when the plant is transitioning between Modes 3 and 2. Also, it is consistent with the requirements of TS 3.1.2.4 which requires at least two charging pumps operable during Modes 1 through 4. However, when one or two boron dilution alarms are not operable and TS 3.1.2.9.b is in affect, the restriction from Tables 3.1-1 through 3.1-5 was not consistent with the requirements of TS 3.1.2.4. Therefore, the staff recommends that the licensee consider a change to TS 3.1.2.4 to define the applicability of TS 3.1.2.4 of Modes 1, 2, and Modes 3, 4 when there are two boron dilution alarms operable. In discussions with the licensee, this change is not needed at this time and a proposed amendment will be submitted in the future to correct the concern.

Based on the above evaluation, the staff concludes that proposed TS 3.1.2.9 is acceptable.

3.0 EXIGENT CIRCUMSTANCES

The conflict with the TS issued by Amendment No. 48, which would preclude reactor startup by deboration, was first discovered by reactor operators. Discussions within the licensee organization began on correcting the conflict by license amendment but no immediate action was deemed necessary at that time. During a subsequent management review, the licensee staff learned that the upcoming startup following the outgoing refueling would use deboration to reach criticality. This method is best for determining certain physics parameters for operation in Cycles 3 and 4. The licensee notified the NRC staff of the urgent need for the license amendment, arranged a special Safety Review Committee meeting to approve the request, and submitted the proposed TS change promptly thereafter. The licensee currently plans to

enter Mode 2 on November 15, 1988 which will not allow the full 30 days for comments on the proposed action. A delay in issuing the amendment will, on the current restart schedule, delay the restart.

4.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if the operation of the facility in accordance with the amendment would not:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- (3) Involve a significant reduction in a margin of safety.

The original analysis of the boron dilution accident for Waterford 3 and the Technical Specifications under which the facility was licensed included provisions for operation with two dilution alarms operable. This allowed initial reactor startup using boron dilution to establish physics parameters. Amendment 48 was issued in December 1988 to reduce conservatism and clarify monitoring frequencies but it inadvertently deleted the provisions which would allow startup by boron dilution. With the dilution alarms operable, the provisions change for charging pumps operable in going from Mode 3 to Mode 2. The staff's analysis and evaluation confirms that the proposed changes are within the bounds of the analysis that the plant was licensed under and that the accident analysis with alarms operable does support the proposed changing plant operations from Mode 3 to Mode 2. Therefore, the change in Technical Specifications returned the plant to the original licensing basis and preserves the analysis from Amendment 48. The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated. The boron dilution accident has been evaluated and the change to return original license provisions does not create the possibility of a new or different kind of accident from any accident previously evaluated.

Operation with dilution alarms operable and charging pumps in operation from Mode 3 to Mode 2 was approved for the original licensing of Waterford 3. Amendment 48 inadvertently altered this provision. This proposed change corrects the Technical Specifications, preserves the SRP guidelines, and therefore, does not involve a significant reduction in a margin of safety. On the basis of the above, the change to allow changing plant operation from Mode 3 to Mode 2 with dilution alarms operable does not involve a significant hazards consideration.

5.0 CONTACT WITH STATE OFFICIAL

The NRC staff has advised the Administrator, Nuclear Energy Division, Office of Environmental Affairs, State of Louisiana of the proposed determination of no significant hazards consideration. No comments were received.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment relates to changes in requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

7.0 CONCLUSION

Based upon its evaluation of the proposed changes to the Waterford 3 Technical Specifications, the staff has concluded that: there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public. The staff, therefore, concludes that the proposed changes are acceptable, and are hereby incorporated into the Waterford 3 Technical Specifications.

Dated: November 14, 1989

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